

Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554

In the Matter of )  
 )  
Emergency Communications by Amateur ) GN Docket 12-91  
Radio and Impediments to Amateur Radio )  
Communications )

To: The Commission

Comments of Steve Porter, in response to public notice

May 17, 2012

Commission query 1.a.

What are examples of disasters, severe weather, and other threats to life and property in which the Amateur Radio Service provided communications services that were important to emergency response or disaster relief? Provide examples of the important benefits of these services.

Response:

Amateur radio operators have been partners with the National Weather Service's (NWS) Skywarn program since its inception, and were involved with assisting the NWS even before the Skywarn program was officially sanctioned in the late 1960's. Amateur radio plays an important role during severe weather by providing "ground truth", information that radar alone cannot provide. This information is vital in order for the NWS to provide the public with advanced severe weather warnings, and reports of damage to the NWS and emergency managers in the aftermath of storms. April and May of 2011 saw large tornado outbreaks across the country and amateur radio responded across the nation. For over 40 years, amateur radio operators have kept an eye on the sky.

Amateur radio is also a long-standing partner with the National Hurricane Center (NHC), collecting reports from affected areas when no other means of communications is available.

The Amateur Radio Emergency Service (ARES, which is administered by the American Radio Relay League (ARRL)) and the Radio Amateur Civil Emergency Service (RACES, which is administered by government agencies) are similar programs that respond during and in the aftermath of severe weather, natural disasters, and man-made disasters. A few examples of the types of incidents that they respond to are hurricanes, tornadoes, severe thunderstorms, floods, ice storms, snow storms, earthquakes, gas leaks, hazardous material spills, forest fires, search and rescues, power outages, telephone outages, etc.

In addition, a number of maritime nets are held on the amateur radio bands virtually around the clock each day. These nets provide assistance to maritime vessels around the globe, both domestic and foreign.

Commission query 1.b.

Under what circumstances does the Amateur Radio Service provide advantages over other communications systems in supporting emergency response or disaster relief activities? Under what circumstances does the Amateur Radio Service complement other forms of communications systems for emergency response or disaster relief?

Response:

Even in today's communications-rich environment of cell phones, smart phones and wireless broadband, amateur radio continues to play a vital role in emergency response.

(continued on page 2)

During severe weather, cell towers are either destroyed or jammed with calls, rendering them ineffective. Amateur radio provides rapid, effective communications when others fail.

In many locations, amateur radio has a presence inside of NWS forecast offices, the NHC, and municipal, county and state emergency operation centers (EOC), providing a direct link to those who need information for critical decision making.

Amateur radio is singularly effective in many situations due to frequency diversity and the ability to adapt to band conditions and set up mobile and portable operations wherever and whenever required.

Commission query 1.c.

What Federal Government plans, policies, and training programs involving emergency response and disaster relief currently include use of the Amateur Radio Service? What additional plans, policies, and training programs would benefit from the inclusion of Amateur Radio Service operations? How would Amateur Radio Service operations fit into these plans and programs?

Response:

In many locations, amateur radio has been included in planning and exercises for operations such as the Chemical Stockpile Emergency Preparedness Plan (CSEPP). CSEPP is a multi-jurisdictional federal program that involves several federal, state, local and municipal agencies. During the opening ceremony for the Clinton Presidential Library in Little Rock, Arkansas, amateur radio had a place in the command center, along with other federal, state and municipal entities. NWS forecast offices and the NHC provide space and equipment for amateur radio use and activate amateur radio operators regularly.

The Federal Emergency Management Agency (FEMA), through its Emergency Management Institute, provides online training for the National Incident Management System (NIMS) and other emergency response and disaster relief topics. More advanced courses are offered in a local classroom setting. This benefits amateur radio operators who wish to volunteer for emergency response by preparing them to become familiar with how to work with other emergency responders in an integrated environment and helps to put us all “on the same page” in order to work together effectively and efficiently.

In large part, all but the largest of incidents are local in nature, and as such, should be handled locally. There are exceptions, of course, but the federal government should leave the bulk of disaster response and policy and communications to local entities who know the “lay of the land”, geography, terrain, etc. As local incidents, emergency response should remain local for the most part.

Commission query 1.d.

What State, tribal, and local government plans, policies, and training programs involving emergency response and disaster relief currently include use of the Amateur Radio Service? What additional plans and programs would benefit from the inclusion of Amateur Radio Service operations? How would Amateur Radio Service operations fit into these plans and programs?

Response:

RACES is implemented at the statewide, county and municipal level. In this area, the state and many counties and cities include amateur radio in their emergency operation plans. Amateur radio has space and equipment in municipal, county and state emergency operation centers and mobile command posts. During the National Level Exercise 2011 (NLE11), amateur radio was included in several states, counties and municipalities and provided a real test of communications capability when no other options were available and almost unanimously received glowing reports from county officials. The Big Dam Bridge 100 mile bike ride has been used in Arkansas as a multi-jurisdictional interoperability exercise between state, county and municipal agencies along the route. Amateur radio has always played a big part in the event and has a place in the command post. During marathon running events across the nation, municipalities include amateur radio as an important facet of their response, and include them in planning and provide them with space and equipment in their EOC and mobile command posts.

(continued on page 3)

Commission query 1.e.

What changes to the Commission's emergency communications rules for the Amateur Radio Service (Part 97, Subpart E) would enhance the ability of amateur operators to support emergency and disaster response? In addition, are there any specific changes that could be made to the technical and operational rules for the Amateur Radio Service (Part 97, Subparts B, C, and D) that would enhance the ability of amateur operators to support emergency and disaster response? What other steps could be taken to enhance the voluntary deployment and effectiveness of Amateur Radio Service operators during disasters and emergencies?

Response:

As for Subpart E, the adoption of additional frequencies for mutual aid liaison use between amateur radio and other public safety responders, along the lines of the 5 MHz Alaskan emergency coordination frequency. This should ideally include frequencies just outside of the current amateur radio bands, with at least one channelized frequency near most amateur radios bands between 3.5 MHz to 450 MHz. This would allow amateur operators to be able to tune their antennas and transceivers for use on these frequencies with little difficulty.

An alternative for VHF and UHF would be to allow the use of at least one of the national interoperability channels in each frequency band (VHF-Lo, VHF-Hi, UHF and 800 MHz) as a liaison channel between public safety and amateur radio.

This would offer amateur radio operators the same degree of interoperability as other emergency responders, and would allow them to coordinate with served agencies while en route to EOCs or incident sites if other means of communication are out.

Part 97.407 deals with RACES. Unfortunately, in some places, there are "turf wars" between RACES and ARES. In other locations they operate essentially as a single entity, though with paperwork and operational differences; the RACES officer also serves as the ARES Emergency Coordinator for a given location. Where possible, this is optimum and ARES and RACES should work together to prevent and end disputes so that there is a unified nationwide amateur radio emergency service.

As for technical rules, amateur operators are sometimes excluded from adopting modes of operation, emission types, and equipment that is openly available in the marketplace to other radio services. In order to allow uninhibited implementation of operating modes, Part 97 should not include a list of allowed emissions, but rather a short list of disallowed emissions and modulation categories. Rather than having to seek permission to use a new emission or modulation type, all would be allowed unless specifically disallowed.

Commission query 1.f.

What training from government or other sources is available for Amateur Radio Service operators for emergency and disaster relief communications? How could this training be enhanced? Should national training standards be developed for emergency communications response?

Response:

In addition to FEMA's NIMS training mentioned previously (which is not specific to amateur radio), the American Radio Relay League (ARRL) offers the Amateur Radio Emergency Communications Course (ARECC), which focuses on amateur radio emergency response. It would be beneficial if ARECC could be offered without charge, as with the FEMA NIMS courses.

As all emergencies are local, no amount of standardized training will adequately prepare amateur radio operators for local conditions and hazards. Currently, the ARRL's ARECC course (for amateur radio specific topics) and FEMA's NIMS training (for incident type response training) offers as much standardized preparatory training as could be useful; all other training needs to be done in a local area of operations with other operators and agencies with whom one will be responding to an incident, i.e. localized exercises.

(continued on page 4)

Commission query 1.g.

What communications capabilities, *e.g.*, voice, video, or data, are available from Amateur Radio Service operators during emergencies and disasters? Are there any future technical innovations that might further improve the Amateur Radio Service?

Response:

Many modes of operation are available for use in emergency response, but the most utilized on the HF bands are single sideband (SSB, voice mode) and Pactor 3 (data via Winlink). On VHF and UHF, FM is the predominant voice mode, with AX.25 packet radio and APRS being the most widely used digital modes.

Digital voice modes are used in some locations, but their cost limits widespread implementation. SSB on the HF bands and FM on the VHF & UHF bands represent the largest installed bases around the nation, and are easily transported and set up in mobile or portable deployments. The existing operator pool is also largest for these modes and thus they are by far the mainstays of amateur radio emergency response.

To the question of whether future technical innovations may improve the abilities of the amateur radio service in disaster responses, the answer is “yes”. We have seen it occur throughout the history of amateur radio, and we expect it to continue to occur. The key to being able to expand the arsenal of available communications tools is to allow amateur radio operators the latitude to experiment and implement new developments without hindrance, without having to gain regulatory approval. Recent advances in digital signal processing have brought remarkable advances in communications capabilities that provide for long distance communications using less power than in the past.

Commission query 1.h.

Are national standards in data transmission needed to enhance the ability of Amateur Radio Service operators to respond to emergencies and disasters? Are there restrictions with regard to transmission speeds that, if removed, would increase the ability of operators to support emergency/disaster response? If so, what issues could arise from removing these restrictions?

Response:

Amateur radio should not be subject to national data transmission standards, as the best combinations of reliability and cost to users usually enjoy the widest adoption. Standards tend to promote stagnation and mediocrity. Amateur radio should be free of such encumbrances, especially with regard to emergency communications.

Less restrictive rules regarding transmission speed (bandwidth), particularly in the VHF region, would allow more data to be exchanged, resulting in better throughput for faster response. In addition, it would allow more types of data to be exchanged, whereas time constraints may be the limiting factor in being able to exchange certain types of data currently, *e.g.* photos, streaming video or audio, etc.

Commission query 1.i.

Would it enhance emergency response and disaster relief activities if Amateur Radio Service operators were able to interconnect with public safety land mobile radio systems or hospital and health care communications systems? What could be done to enable or enhance such interconnections? What issues could arise from permitting such interconnections?

(continued on page 5)

Response:

Interconnection between the amateur radio service and other services would be problematic and should be avoided.

The best form of interoperability occurs in the command center between command units of each responding service, not by having all respondents on the same channel.

Public safety responders have their own rules and protocols; fire protection is different from law enforcement, which is different from emergency medical, which is different from amateur radio. To have all on the same channel would be chaos.

An alternative solution was expressed in response to Commission query 1.e above, either by providing joint mutual aid liaison channels that would be available to both public safety responders and amateur radio operators or allow restricted use of some of the national interoperability channels by amateur radio operators during disaster response.

Commission query 1.j.

Should there be national certification programs to standardize amateur radio emergency communications training, mobilization, and operations? How would such programs improve emergency communications?

Response:

No. All emergencies are local, and as such, all response should be rooted locally, including training, planning and preparations.

The FEMA NIMS and other online disaster training, coupled with the ARRL's ARECC training, and state and local emergency operation plans and exercises are the best combination for successful disaster response preparation.

Certification should be at the state level, with reciprocal mutual aid agreements.

Commission query 2.a.

What are the effects of unreasonable and unnecessary restrictions on the amateur radio community's ability to use the Amateur Radio Service? Specifically, do these restrictions affect the amateur radio community's ability to respond to disasters, severe weather, and other threats to lives and property in the United States? What actions can be taken to minimize the effects of these restrictions?

Response:

Without the ability to erect suitable antennas that operate optimally on a specific band, an amateur radio operator's ability to respond during emergencies is severely hampered. On the VHF and UHF bands, signals travel primarily by line of sight and it is necessary to locate an antenna as high as possible to gain good effect; without the ability to place the antenna above nearby obstructions, effectiveness (communications range) is severely limited. On the HF bands, antennas need to be placed a proportional distance above ground (which varies, depending on the type of antenna) in order to provide the best signal radiation pattern. At less than optimal height, the radiation pattern becomes skewed or erratic, providing less than optimal communications capabilities.

On the VHF and UHF bands, there is no substitute for antenna height; during emergencies, when electric power may be out, the use of high power amplifiers may not be an option.

On the HF bands, there is just one optimum height for a particular type of antenna, and if it can't be placed there, the signal suffers.

continued on page 6)

Commission query 2.d.

Do any Commission rules create impediments to enhanced Amateur Radio Service communications? What are the effects of these rules on the amateur radio community's ability to use the Amateur Radio Service? Do disaster and/or severe weather situations present any special circumstances wherein Commission rules may create impediments that would not otherwise exist in non-disaster situations? What actions can be taken to minimize the effects of these rules?

Response:

Yes; as addressed in response to previous queries, prohibitions of emission and modulation types rather than allowing all but a short list does inhibit development. This prolongs delays in implementing new developments that could be beneficial in disaster response.

Commission query 2.f.

The legislation requires the Commission to identify "impediments to *enhanced* Amateur Radio Service communications."<sup>7</sup> What specific "enhance[ments]" to Amateur Radio Service communications have been obstructed by the impediments discussed above?

Response:

Spread spectrum restrictions, digital voice mode restrictions, bandwidth restrictions (as relates to data transmission on VHF bands)

Additional closing comments:

There is at least one issue that hasn't been addressed by any of the questions, either by the Commission or by the legislative directive that resulted in this study, and it isn't surprising, considering that the study was facilitated at the federal level; the issue is the nature of the federal government and national organizations which function in a "top down" mindset.

**All emergencies are local.** Some may be broader in scope and encompass several states, but the focus on emergency service and disaster relief is local; i.e., at the municipal and county level. That is where the "rubber meets the road" and where it either succeeds or fails. It is about the neighbor whose home floods, or the local firehouse that was hit by tornado, or the tree down on the local church.

For this reason, the bulk of planning, training, and preparation also needs to be at the local level. State and federal governments can and do assist, and national organizations do step in to help if needed, but should not attempt to "run the show" or dictate methods or procedures to local groups, who best know the "lay of the land" for their area. It is imperative for amateur radio operators to practice, exercise and train with their fellows in their community, to adopt, practice and implement procedures locally so that they can be effective when an emergency or disaster occurs.

The "top down" mindset by national/federal and state level entities can be (has been) an impediment to local groups. To suggest policies and procedures is fine, to offer training is fine, feel free to lend support, but to dictate policy and procedures for the "amateur" radio service from Washington or Gettysburg or Newington is counterproductive.

Note also that all amateur radio operators do not care to participate in training and are not well suited to emergency service.

Lastly, the amateur radio service is just that..."amateur", not to be confused or merged with professional public safety agencies, though we can and will do everything that we can to assist anyone and everyone when the need arises.

End of Comments

(continued on Page 7)

GN Docket 12-91  
Comments of Steve Porter  
May 16, 2012  
(continued from page 6)

Commenter background:

Steve Porter has been licensed as an amateur radio operator for 33 years and holds an Extra Class license.

During years of service with ARES, RACES, Skywarn, and performing public service events, he has worked alongside law enforcement, fire protection, emergency medical, and rescue units in hospitals, EOCs, mobile command posts, NWS forecast office and in the field.

He has served as an ARRL Volunteer Examiner, Emergency Coordinator, Assistant District Emergency Coordinator, Assistant Section Manager, as a public safety dispatcher and volunteer firefighter, and has successfully completed ARRL ARECC courses, NIMS courses, and NWS Basic and Advanced Skywarn training.

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